

REMARKS

Claims 1-24 are pending in the application.

Claims 1-24 were rejected under 35 U.S.C. § 103.

Claim 11 is amended.

No new subject matter is added.

Claims 1-24 remain in the case for consideration.

Claim Rejections 35 U.S.C. § 103

Claims 1-2, 4 and 9-21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Boyd (U.S. Patent No. 6,166,831) in view of Scott (U.S. Patent No. 6,928,195 B2) and Ogasawara (U.S. Patent No. 4,409,625).

Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Boyd in view of Scott, Ogasawara, and Teeter (U.S. Patent No. 4,451,030).

Claims 5-6, 8 and 22-24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Boyd in view of Scott, Ogasawara, and Shimizu (U.S. Patent No. 5,777,308).

Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Boyd in view of Scott, Ogasawara, Shimizu, and Teeter.

The Applicant respectfully traverses these rejections because a proper *prima facie* case of obviousness has not been established. The Applicant notes that under MPEP § 2143, a proper *prima facie* obviousness rejection must disclose one or more references that teach or would be obviously modified by one skilled in the art every claim element. If two or more references are combined, MPEP § 2143 further requires that there be some suggestion in the references or from the prior art as a whole that would motivate one skilled in the art to combine the references, as well as a reasonable expectation of success. This is further supported by the recent *KSR* decision, whereby the Supreme Court acknowledged the importance of identifying “a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does” in an obviousness determination. *KSR*, 127 S. Ct. 1727 at 1731 (2007). Additionally, if one of the references ‘teaches away’ from the combination of references (i.e., teaches away from the missing claim element) it is strong evidence of nonobviousness. The Applicant also points out that claim elements must be read together as a whole rather than in a vacuum. That is, each element must be read in consideration of the other elements in the claim.

Claim 1 has been rejected as unpatentable over Boyd in view of Scott and Ogasawara. Claim 1 is directed to a resolution sensing method for a scanner, to allow the scanner to have a scan resolution thereof increased m times, wherein the scanner comprises a motor and a charge coupled device, and wherein the charge coupled device comprises m rows of sensors.

This sensing method comprises:

- moving the motor during an exposure time a distance substantially equal to a width of one row of the sensors at a speed substantially equal to the width divided by the exposure time; and
- using the m rows of sensors concurrently to scan m document portions during the exposure time wherein each of said m document portions are not adjacent to any other of said m document portions, wherein each row of sensors is spaced apart from each other row of sensors.

In particular, claim 1 recites using the m rows of sensors concurrently to scan m document portions during the exposure time wherein each of said m document portions are not adjacent to any other of said m document portions, wherein each row of sensors is spaced apart from each other row of sensors.

In contrast, Boyd, Scott, and Ogasawara are not properly combinable to teach every element of claim 1. In the Office Action, it is acknowledged that “Boyd does not disclose expressly that said m rows are used concurrently to scan; that each of said m document portions are not adjacent to any other of said m document portions; and that each row of sensors is spaced apart from each other row of sensors.” Office Action page 3, section 4. The Office Action goes on to assert that Scott discloses scanning m document portions wherein each of said m document portions are not adjacent to any other of said m document portions based on figure 4 (element 410) and column 4, lines 44-45 and 49-52 of Scott. The Office Action asserts that since each nutating position scanned is interlaced with each other to produce a higher-resolution image that “the individual document portions scanned for each nutating position are therefore not adjacent to any other document portions in said nutating position.” Office Action page 4, section 4.

The Applicant, however, respectfully disagrees that this disclosure in Scott teaches that each of said m document portions are not adjacent to each other. Rather, at each nutating position, each of the pixels captured are adjacent to other pixels captured during the scan. The teaching that the nutating position can be adjusted to obtain sub-pixel differences and combinable to produce a higher resolution image does not mean that the original pixels of each positional scan are not adjacent to each other. Instead, each document portion is adjacent to another document portion during any of the positional scan, they are just all at relatively low resolutions. In other words, Scott teaches that each positional scan of the

document captures the entire document at a certain nutating position rather than scanning only small portions of the document with each scan pass. The positional whole image scans have slightly offset center pixel points that can be later intertwined to form a higher resolution final result. Note, however, that Scott teaches each positional scan as a full image scan that is intertwined and not just an assemblage of separate scans of smaller document portions that are not adjacent to each other. Thus, Scott does not teach that each of said m document portions is not adjacent to each other. In addition, Ogasawara does not teach this limitation, which can be easily seen from Fig. 3 of Ogasawara since it shows each scanned document portion is adjacent to another document portion. Hence, none of Boyd, Scott, or Ogasawara teaches all of the limitations of claim 1. As such, the combination of Boyd, Scott, and Ogasawara cannot render claim 1 unpatentable.

In addition, Scott and Ogasawara cannot be properly combined with Boyd since Boyd teaches away from such a combination. As mentioned above, the elements of the claims must be read together rather than read in a piecemeal fashion. As discussed above, claim 1 recites using the m rows of sensors concurrently to scan m document portions during the exposure time wherein each of said m document portions are not adjacent to any other of said m document portions, wherein each row of sensors is spaced apart from each other row of sensors. Thus, to properly teach this element a reference or combination of references would need to teach the element as a whole without rendering other portions of the element meaningless or counterintuitive. Here, for example, the Office Action asserts that the concurrent scanning of document portions in Ogasawara could be combinable with Boyd to teach that m rows are used concurrently to scan. However, Boyd expressly teaches scanning and reading out the offset rows of pixels at different times. See FIG. 3 and col. 3, lines 17-25 (“Read circuit 20 includes a first plurality of switches 42, the odd switches which read out pixels 34 in row 30 at times $t_1, t_3, t_5, t_7, t_9 \dots$ second switch circuit 44 reads out pixels 36 in row 32 at even times $t_2, t_4, t_6, t_8 \dots$ ”). Thus, Boyd teaches away from such a combination.

Additionally, the Office Action asserts that Ogasawara teaches that each row of sensors is spaced apart from each other row of sensors and that this teaching would be combinable with Boyd because “to be able to skip lines that do not contain non-blank image information.” Office Action page 4, section 4. The Applicant again points out that Boyd teaches away from this combination as Boyd expressly states that “first and second rows 30, 32 ... are adjacent to each other.” Col. 2, lines 57-58. Further, Boyd provides the reasoning for such an orientation of adjacent rows: “Thus if the lateral spacing can be kept within that range [(within one half of the periodicity or pitch of the pixel scanner)], the two rows

effectively function as one row.” Col. 3, lines 5-7. In other words, Boyd teaches that the rows have to be so close to each other that centers of the rows should be within one half of the pitch *W* of the pixel cells so that they can function as a singular row. This disclosure of Boyd, however, teaches directly away from Ogasawara’s teaching that each row of sensors is spaced apart from each other row of sensors. Hence, this teaching from Ogasawara is not properly combinable with Boy. In addition, the motivation cited by the Examiner “to be able to skip lines that do not contain non-lack image information” appears to have little relationship to the spacing of the sensors. Rather, Ogasawara teaches this advantage of having multiple sensors next to each other is so that sensors (even though the sensors may be slightly spaced apart, they read directly adjacent portions of the document – see FIG. 3) that are focused over blank portions of a document can skip sending that information while sensors positioned over non-blank areas can properly send the information. This advantage, however, would not motivate one skilled in the art to modify Boyd with spaced apart sensors since Boyd teaches that its rows of sensors should be extremely close to each other to function as a single sensor with improved resolution.

Therefore, the Applicant respectfully submits that the Examiner has not established a proper *prima facie* case of obviousness and hence has not shown claim 1 to be unpatentable over Boyd in view of Scott and Ogasawara. As such, the Applicant submits that claim 1 is in proper form for allowance and requests that the rejection under § 103(a) be removed.

Claims 2-4 depend from claim 1. Based at least in part on their dependency, the Applicant submits that claims 2-4 are likewise in proper form for allowance.

Claims 5, 9, 11, 13, 15, 17, 19, and 22 include similar limitations to claim 1. Hence, based at least in part on the discussion above, the Applicant submits that proper *prima facie* cases of obviousness have not been established to show these claims are unpatentable over Boyd in view of at least Scott and Ogasawara. As such, the Applicant submits that claims 5, 9, 11, 13, 15, 17, 19, and 22 are in proper form for allowance and requests that the rejections under § 103(a) be removed. The Applicant also notes that claim 11 has been amended to specify that the each of the first row of sensors and the second row of sensors includes a plurality of sensors to detect three primary colors. In contrast, none of Boyd, Scott, or Ogasawara teaches a plurality of sensor rows, where each row includes a plurality of sensors to detect three primary colors. As such, the Applicant submits that in addition to the reasons discussed with regard to claim 1, claim 11 is allowable over Boyd, Scott, and Ogasawara based on this added limitation.

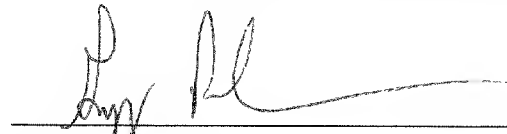
Claims 6-8, 10, 12, 14, 16, 18, 20-21, and 23-24 depend from one of claims 5, 9, 11, 13, 15, 17, 19, and 22. Base at least in part on these dependencies, the Applicant submits that claims 6-8, 10, 12, 14, 16, 18, 20-21, and 23-24 are likewise in proper form for allowance.

Conclusion

For the foregoing reasons, reconsideration and allowance of claims 1-24 of the application as amended is requested. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'Gregg Palmer', is written over a horizontal line.

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